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Promoting the Use at Home of Behavior Management Skills by Parents of Autistic Children

As a group, children and youth with autism are the most at-risk population in the United States today (Warren, 1980). With an incidence for severe autism of 5 in 10,000 and more like 20 in 10,000 individuals affected by the broader category of pervasive developmental disorders, autism is about as common as blindness but not nearly as well understood or treated. In reality, the term autism is only a label which refers not to a discrete, singular disorder but to a set of clinical factors, behaviors and symptoms. The autistic syndromes (Coleman and Gillberg, 1985) are characterized by lack of responsiveness to other people, objects and events; disturbances of speech, language, cognition and nonverbal communication; bizarre responses to the environment, such as resistance to change, or peculiar interests in or attachments to objects; disturbed responses to sensory stimuli, both overreacting and underreacting; and disturbed developmental rates and sequences in motor, social and cognitive skills.

Learning for autistic persons is further complicated by the co-occurrence of mental retardation, only 25% have IQ'S of 100 or higher (Ritvo and Freeman, 1979), and seizure disorders which afflict approximately 25% by age 30 (Corbett, 1983). Ninety-five percent of persons with autism are disabled under the terms of the Developmental Disabilities Act, and in recent years (Sullivan, 1977), ninety-five percent have lived in institutions by the time they reach adulthood.

Institutionalization need not be a forgone conclusion, however. Autistic children need pervasive early education at home and in educational centers that is structured, consistent and intrusive to prepare them for eventual semi-independent or independent living (Lockyer & Rutter, 1969; Lovaas, 1978; Rutter, Greenfield & Lockyer, 1967; Russell, 1975). To nurture the development of these children, parents need knowledge, skills and support far beyond that needed for normal parenting (Marcus, 1977).

Largely through the early work of Lovaas and his colleagues (Lovaas, Freitag, Nelson & Whalen, 1967; Lovaas, Koegel, Simmons & Stevens-Long, 1973; Lovaas, Schaeffer & Simmons, 1971), the discovery was made that learning in one setting on the part of autistic children did not transfer to the home and was quickly lost once treatment was discontinued. However, if parents were trained to function as behavior therapists with their children at home, it was found that learning could be maintained and increased in both settings (Lovaas, et al., 1973). Parent training thus became an essential part of the educational process for children with autism. Ideally, the treatment of autism today is a cooperative, long-term effort between professionals and parents (Paluszny, 1979).

As the professional who serves as liaison between the home and the educational or treatment center, social workers have primary responsibility for working within the family system and the school system to facilitate a genuine cooperative partnership that supports optimal learning for the autistic child. While it has been well documented that parents can be taught to manage the behavior of their

developmentally delayed child, (Koegel, Glahn & Nieminen, 1978; Kozloff, 1973, 1979, 1984; Lovaas, et al., 1973; Lovaas, 1978) and a variety of training approaches including individual and group instruction have produced good skills in parents and desirable changes in the behavior of the children initially (Koegel, et al., 1978; Kozloff, 1973, 1979, 1984; Lovaas, 1978; Wing, 1980), the degree to which parents will use newly acquired skills at home and for how long is less predictable and requires greater attention (Forehand & Atkeson, 1977; Helm & Kozloff, 1986; Nay, 1979).

Early training in behavior management helps parents learn to control their child's behavior and provides them with essential skills which they can use to strengthen their child's sense of self-control. As the child matures, physical prompting and restraining become more difficult, if not impossible, at the same time that behaviors once tolerable in a young child become intolerable in adolescence. In this way, effective behavior control mechanisms become critical determinants of the family's ability to keep the child at home and maintain family well-being. They also contribute significantly to the child's ability to benefit from an educational program and the young adult's ability to function in a group living situation or work setting in the community.

Building upon the training methods used by Koegel and his colleagues (1978); current methods of teaching autistic children (Donnellan, Gossage, LaVigna, Schuler & Traphagen, 1977; Schreibman & Koegel, 1981) and Bandura and colleague's work on self-efficacy (1977, 1977, 1980), this experimental training program sought to teach mothers to effectively use a generalizable set of skills to get their children to follow directions at school and at home; to produce strong expectations of personal effectiveness (self-efficacy) among the mothers in using the targeted skills with their child at school and at home; to examine the mother's acquisition, generalization and maintenance of the targeted skills and the child's response to her use of these skills, and to examine a number of variables as possible contributors to differences in parent and child learning.

Research Questions

This study was guided by the following research questions:

1. What is the relationship between the mother's learning (acquisition, generalization and maintenance) of the targeted skills and the following variables: the mother's expectations of personal effectiveness (self-efficacy) using the targeted skills, depression, knowledge of behavior principles, expectations of training effectiveness (pre-training) and evaluation of training effectiveness (post-training); marital adjustment and parent/teacher assessments of the child's difficulty learning compared to other children with autism and their prognoses for the child's future.

2. What is the relationship between the mother's performance using the targeted skills at the school in a structured setting and at home in a play setting, initially and three months after training.

3. Will the children learn the desired direction-following behavior at school in response to their mother's use of the training skills and will changes in the child's behavior at school generalize to the play setting at home, and be maintained at three months followup?

Subjects

This study included five mothers (ages 27-34) with an autistic child (ages 3 to 5 1/2 years). All were enrolled in an intensive behavior therapy program for pre-school children with autism in a Western U.S. city and volunteered to participate in the study. No parent was denied training and none dropped out once training began.

As a group, the children exhibited few self-help behaviors and were often non-compliant and frequently engaged in tantrumming and self-stimulatory behavior. Communication with all of the children at the school included verbal as well as sign language.

Training Program and Procedure

All of the parents expressed a need for help getting their children to follow a variety of simple directions and selected and ranked three directions from a list developed by the researcher. These directions became the focus of the training and included "Stay Here," "Put the object (book, toy, truck, etc.) in the box [on the shelf]," "Get Down," "Give me the object," "Touch [or point to] the object."

Training took place at the school and was videotaped. Home observation was focused by directions to the mothers to get their child involved in activities with toys which were provided, such as stacking legos, putting balls in a jar, pushing a car or rolling a ball.

The training program included four sessions. The first three sessions were videotaped and included: a general overview of behavior management principles and the special learning problems and needs of children with autism, definitions of terms, instructions for parents, and demonstrations (by several adults and autistic children, all non-participants in the present research) of the parent target behaviors as well as the child target behaviors. The fourth training session provided group instruction on how to develop and implement a plan to change other behaviors at home or in other settings.

After viewing the training tape, each parent had an opportunity to discuss the material and to practice using the skills with her child. Each parent received corrective feedback from the trainer only for the one direction she had ranked as first priority (Direction 1). Directions 2 and 3 became generalization measures. Parents were observed as they taught their children to follow all three of the directions they selected.

Following each training session, the mothers were given recording forms and asked to practice using the training skills at home. Homework assignments were collected and discussed each week.

Design

A multiple baseline design across mother and child behaviors was used. Target skills for the mothers included correct use of a Get Ready to work cue (e.g. hands down, feet on the floor, quiet), commands, modeling, prompting, and reinforcing. Child behaviors included attending and correct responding to the mother's commands. Data at the school were obtained for eight trial sessions in baseline and for six trial sessions following the introduction of each of the four components of the experimental training program. Data at home were obtained in weekly 30 minute observation periods of the mother and child interacting in a play setting. Follow-up observation was conducted at home 12 weeks after training and included six structured sessions as well as a 30 minute observation of mother and child in the play setting.

Parent Measures

A Parent Self-Efficacy Questionnaire based on the format described by Bandura and his colleagues (1977), was developed by the researcher to measure strength and generality of the mother's self-efficacy expectations using the targeted skills.

The Dyadic Adjustment Scale, (Spanier, 1976) a 32-item inventory addressing couple agreement about varied areas of daily living, communication, satisfaction with one another, and investment in seeing the relationship succeed, was selected as a means of measuring levels of marital adjustment and satisfaction. Both parents of three of the autistic children completed the inventory prior to the beginning of parent training.

The Knowledge of Behavior Principles as Applied to Children (KBPAC), (O'Dell 1973) was used to measure the parent's ability to apply behavioral principles to child problems, pre-and post-training.

Expectations of Training Effectiveness was measured by asking mothers and fathers to describe their beliefs about how autistic children could best be taught. After hearing the experimental training program described, they were also asked to describe how effective they thought this method would be with their child.

The Cheerfulness-Depressive Mood Scale of the General Well-Being Schedule (Fazio, 1977) was given to each mother prior to the beginning of the training program to screen for severe depression, which, if present, might interfere with performance in the training program.

The Training Program Evaluation consisted of a structured interview to evaluate the training program which was conducted with parents at followup.

The Autism Behavior Checklist (ABC) (Krug, Arick & Almond, 1978) was completed by each mother prior to the beginning of the study. From this diagnostic tool, an individual profile of the child's behavior emerged. These profiles have been found to accurately differentiate individuals diagnosed as autistic from those with all other handicapping conditions (Krug et al., 1978).

Observational Measurements

The criteria for correct mother and child behaviors which formed the observer scoring instructions were adapted from Koegel et al. (1978). An interval recording system was used to record mother and child behaviors. Prior to the study, three graduate students were trained at the school and in the home of a non-participating parent and autistic child. One of these trained observers checked for interobserver reliability (Harris and Lahey, 1978) for each parent and child behavior once during each phase of the training and at followup in both the school and home settings. Average interobserver reliabilities for all behaviors in the school setting ranged from 95% to 98% for the five subjects. In the home setting, average reliabilities for all behaviors ranged from 96% to 98% for the five subjects. Interobserver agreement scores for Child Attending were lower than for other behaviors averaging 82% (range 68%-94%) across all children at home and at the school.

Results

Research Question 1

Perceived self-efficacy increased by the end of parent training for all five parents. Self-efficacy ratings by Parents 2, 3 and 5 steadily increased over the training period to high levels by the end. Self-efficacy ratings by Parents 1 and 4 were relatively stable across the training period at a high level for Parent 1 and at a low level for Parent 4.

Parent 3 had the highest score for generalization as well as the highest composite self-efficacy score at posttraining. Parent 4, on the other hand, achieved the lowest score for generalization and had the lowest composite self-efficacy score at posttraining. There is no conclusive evidence of a relationship between perceived self-efficacy and generalization for all of the parents, however the findings for Parents 3 and 4 may suggest a positive relationship.

Parent 3 also received the highest scores for maintenance while Parent 4 received the lowest scores for maintenance. Again, in terms of generalization, maintenance and self-efficacy these findings are not consistent for all of the parents, but the association between self-efficacy, generalization and maintenance for Parents 3 and 4 is positive and warrants further study.

The relationship, if any, between parent scores on the KBPAC and acquisition, generalization or maintenance of parent skill use is not clear. However, Parents 2 and 3, the top scorers on the KBPAC, were also the two college graduates among the parents and the two parents who achieved the highest scores for maintenance of skill use at home.

All of the mothers and fathers expressed positive expectations that a behavior management approach was effective with autistic children and that training based on this approach would be most valuable to them.

All of the mothers indicated that their children improved in following the target directions from "not at all" to "extremely well"

and that they were following these and other directions in general "extremely well" at followup. All of the parents rated the skills they learned as "extremely relevant" to controlling their home situation and connecting with their child and the training program as "extremely effective." Parents ranked practicing the skills with their child as the most important part of the training program; getting feedback, viewing the training tapes and reading the training manuscript second.

The following factors were identified by parents as contributing to their continued use of the targeted skills: 1) the benefits they received from using them and the negative consequences when they did not, and 2) the overall positive effect on the child's behavior at home. Factors contributing to discontinued use included 1) being too busy, and too much competition from other children, 2) being too tired or experiencing difficulty changing old habits, 3) "feeling doubtful that the skills will work," 4) feeling that using skills was boring and depressing for the child, 5) feeling self-conscious about using skills when others were around, and 6) not wanting to use them when the child was sick.

Research Question 2.

Figure 1 presents the mean performance of all the parents and children during baseline, after Training Session IV, and at followup in the structured sessions at the school and in the play setting at home. In general, the mothers did learn to use the targeted skills correctly in the structured sessions at the school. All were able to use the targeted skills to teach Directions 2 and 3 as well as Direction 1. The most dramatic changes in correct use of the targeted skills occurred after Training Tape I which demonstrated correct use of the Get Ready cue and commands and Training Tape III which demonstrated correct use of Reinforcement. Correct use of the Get Ready cue, commands and reinforcement improved to mean levels above 80 percent for all of the mothers, and these changes were maintained throughout the training program at the school.

High scores for skill generalization to the home play setting occurred for the greatest number of parents (Parents 1, 2, 3 and 5) on correct use of the Get Ready cue; followed by commands (Parents 2, 3 and 5) and reinforcing (Parents 2 and 3).

Correct use of the Get Ready cue at home increased over a baseline mean of 0% for all of the parents to a mean of 66% after Training Session IV. Correct use of commands in the play setting increased from a baseline mean of 33% to 84% after Training Session IV. Scores for correct reinforcing behavior at home also increased from an overall mean of 73% in baseline to 83% after Training Tape IV.

Maintenance was measured by observing target behaviors in structured sessions at home (Directions 1, 2 and 3) and in the play setting at home. Correct use of the Get Ready cue and commands was well maintained by all five parents in the structured sessions. Correct use of reinforcement in the structured sessions was maintained by only three of the five parents (Parents 1, 3, and 4).

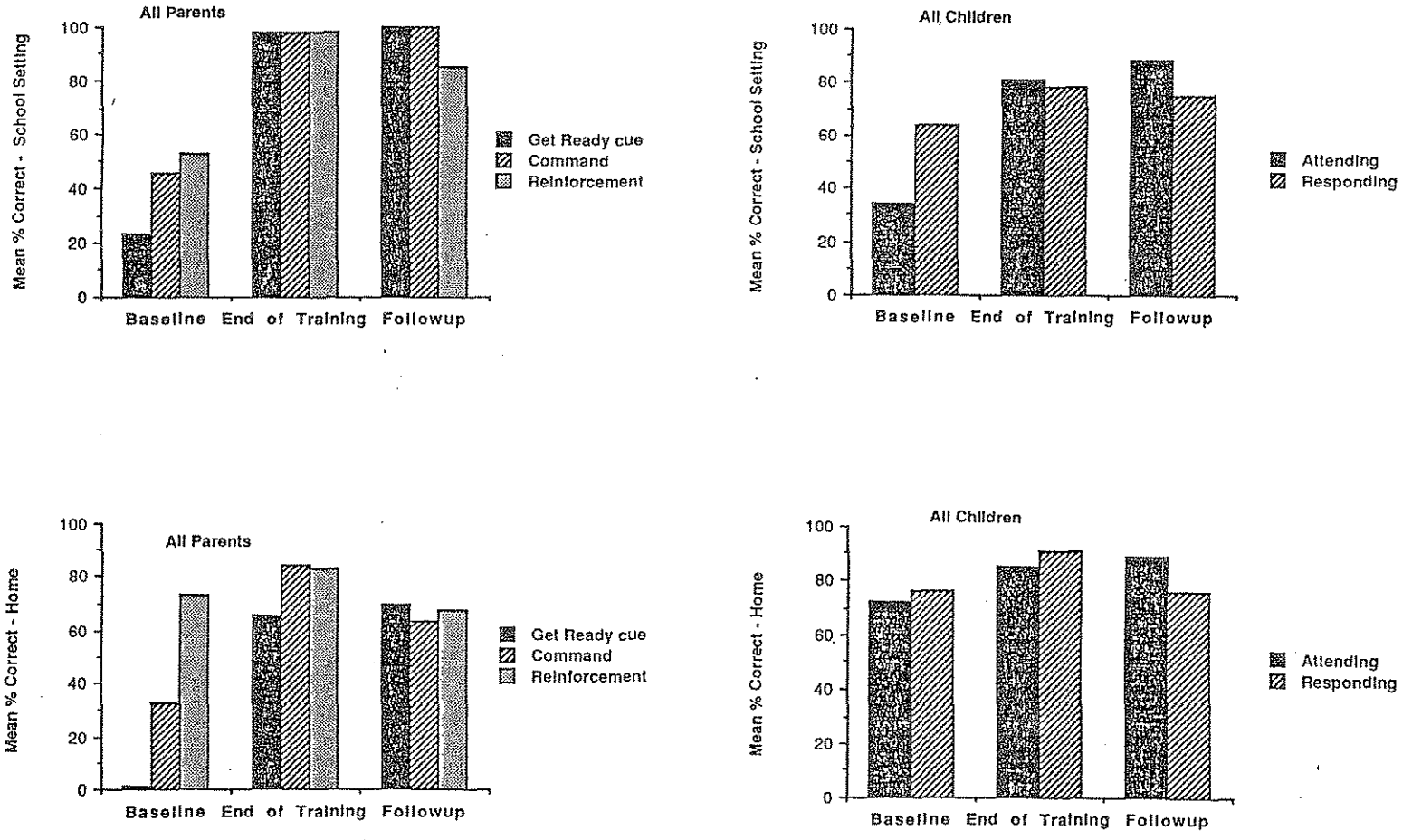

Figure 1. Mean Percentage Correct Scores for all parents and children in the structured sessions at the school and in the play setting at home.

Overall mean scores for correct use of all the targeted skills except the Get Ready cue were decreased at follow-up in the play setting. Correct use of the Get Ready cue was well maintained by Parents 2, 3 and 5 only. Correct use of commands was maintained at a high level or increased over last school observation for Parents 1 and 3 and maintained at a lower level by Parents 2 and 5. Correct use of commands in the play setting was not maintained at all by Parent 4. Correct use of reinforcement was maintained 100% correctly by Parent 3 only and at lower levels (50% correct or better) by the other four parents.

Thus, correct use of reinforcement was maintained by three of the parents in the structured sessions but only by Parent 3 in the play setting. Parents 1 and 4 maintained all of the behaviors in the structured sessions but not in the play setting. Maintenance of all the targeted skills in both structured sessions and in the play setting was high only for Parent 3.

Research Question 3

In the structured sessions at the school, there was general improvement in attending and correct responding for all children from baseline to last school observation. Scores for correct responding to parent commands varied considerably across the training period, however.

At home in the play setting, child attending behavior improved for four of the five children (Children 1, 2, 4 and 5) from baseline to final home observation and was greater at home than at school for Children 1, 2 and 4. Correct responding to parent commands in the play setting improved for Children 1, 2, 4 and 5 from baseline to last home observation and was greater at home than at school for Children 2, 3, 4 and 5.

In the structured sessions, attending behavior for Children 1, 2, 3 and 4 was not only maintained but improved over last school observation scores. The attending behavior of child 5 deteriorated. In the play setting, attending was improved or maintained at training levels for four of the five children. Correct responding scores in the play setting were improved or maintained at training levels for three of the five children (Children 1, 4 and 5) and decreased for Children 2 and 3.

For none of the parent/child dyads in this study is there a clear and consistent positive relationship between the performances of the mothers and the performances of their children.

Discussion

This study documented the effectiveness of a training program in teaching behavioral management skills to five parents who were, in turn, able to teach their autistic children to follow three directions in structured sessions at the school and a series of different directions in a play setting at home.

Training effects generalized from the school to the home for four of the five parents but were well maintained by only one of the par-

ents 12 weeks after training. There were marked discrepancies between parent learning and child performance. All of the parents' self-efficacy scores increased over the course of training with the highest scoring parent (Parent 3) also achieving the highest scores in generalization and maintenance and the lowest scoring parent (Parent 4) achieving the lowest scores in generalization and maintenance. Written comments by Parents 1 and 2 revealed they were having difficulty estimating their ability to use the targeted skills with their child separate from their expectations of how their child would respond to them. Their expectations that the child would not respond correctly "even if they did everything just right" seemed to lower their self-efficacy ratings. For future application of self-efficacy theory to parent training, a method of evaluating the extent to which parent self-efficacy ratings are influenced by their anticipation of how their child will respond to them should be developed. Perhaps more accurate self-efficacy data could be obtained if parents were asked to predict their childs response to them, separate from their own ratings of their ability to perform a given task.

Although it is not apparent from the overall data on Reinforcement for Parents 4 and 5, the use of the Get Ready cue and commands resulted in a dramatic shift in parent/child interaction for these pairs. A pattern of non-compliance by the child which was either ignored or strongly reinforced by the parent was initially observed. After Training Tape I, a pattern of compliance in the children and positive reinforcement by the parents was observed. Both of these parents expressed surprise and pleasure with this change in the interaction with their child and indicated that they had never been able to get their child to make eye contact or follow a direction before. The use of these skills alone provided an avenue for reciprocal positive reinforcement for parents and children and fostered the development of positive interaction not experienced before. The benefit of increasing opportunities for reinforcement between parents and autistic children should not be underestimated.

The results of this study do not support a consistent relationship between parent performance and child attending and correct responding either at the school or at home. This apparent inconsistency may be due in part to the fact that the observer reliability scores for child attending were the lowest of all the behaviors observed. Low correct response rates by the children in the structured setting may also have been due in part to the fact that as parent skill increased, fewer commands were given and children had fewer opportunities to respond correctly during a given observation period. This resulted in inflated levels initially for child correct responses and deflated correct response levels as the training progressed.

Child attending and correct responding scores were higher in the home play setting than in the structured sessions at school for four of the five children. Based on parent reports, this finding may have been related to the mutual reinforcement provided by such a "play" time between parent and child in the familiar and relaxed atmosphere of their homes in contrast to the more repetitious and perhaps boring sessions at the school. Homework assignments were reported beneficial by all of the parents but provided an important structure for main-

taining skills home, especially for Parent 4.

Only mothers were trained in this study, yet the need to include fathers (and/or other parenting figures who spend a significant amount of time with the autistic child) is obvious. Aside from the fact that training one parent is probably less effective than training both, it may create additional tension and conflict in a marriage relationship already stressed by the presence of a severely handicapped child as Kaufman (1981) noted. Additional training was subsequently offered in the classroom and at home to the fathers of child 1, 2, and 5 and to the grandmother and aunt of child 4.

The two mothers who had college degrees achieved the highest in generalization and maintenance scores. Given the small size of this sample, one may only speculate that there may be a relationship between parent level of education and the ability to generalize and maintain skill use at home. Because both families had other developmentally handicapped children at home, these mothers may also have been more highly motivated to master and use the targeted skills not just with their autistic child but with their other children as well. The implications of these findings need to be investigated further using a larger sample.

At follow up, four of the parents failed to use the targeted skills correctly in the play setting, although correct use of the same skills was well maintained in structured sessions. This finding suggests the need for more systematic programming to strengthen parent skill generalization to less structured settings at home and elsewhere in the child's environment.

While the experimental training program appears to have been an effective model for initial parent instruction, not all parents were able to transfer the skills they learned at school to the home and most did not maintain the use of the targeted skills a few months after training ended. The risks of institutionalization for autistic children and the resulting costs to society are so great that social workers need to offer extensive services to these families and expanded parent training programs. Because almost all the autistic child's behaviors must be painstakingly taught, and little or no generalization from one setting to another occurs naturally, just about every one with whom the child comes in contact must become a "teacher," if the autistic child is to gain the functional skills of adulthood (Levison & Osterweil, 1984). Attention should thus be given to initial as well as long-term maintenance training for both parents, other caregivers and the autistic child's siblings as well.

While this study documented change quantitatively in a small sample, more comprehensive evaluation of qualitative aspects of the family environment is needed (Helm & Kozloff, 1986). Little is known about the impact of parent training on the marital relationship and overall family interaction and functioning, the long-term benefits of parent training, or the effect social support and the availability of community services may have on the family's ability to make use of parent training.

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